# Comparison of In-House Costs and Private Sector Prices for Selected Vehicle Maintenance Services

October 30, 1996

# Office of City Auditor

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# EXECUTIVE SUMMARY

The City spends over $7.6 million a year on vehicle maintenance. At the request of the City Council and the Department of Administrative Services (DAS), we reviewed the Department's in-house vehicle maintenance services so as to:

- compare in-house costs for selected services with private-sector prices;
- obtain customer feedback on the quality, cost, convenience and timeliness of services, along with performance-measure data; and
- identify additional performance measures and industry benchmarks to assist the Department in monitoring its performance.

To compare in-house costs to private-sector price quotes, with DAS we judgmentally selected six of the City's high cost vehicle maintenance services. In 1995, the City spent approximately $760,000 on these six services. For all six services, we found that the Fleet Services Division may be able to reduce its costs because at least one vendor price quote was lower than the Division's costs.

- For three of the services, the Division's costs exceeded the average of the vendor price quotes we obtained.
- For two other services, the Division's costs were lower than the average vendor price quote.
- Although we could not directly compare the Division's actual costs for the sixth service with actual vendor prices, the Division's cost estimates exceeded the vendors' and independent appraisers' price quotes.

In-house costs were approximately $114,000 (which is 15 percent of the six services reviewed totaling $760,000) greater than the vendors' lowest price quotes. Comparing in-house costs to private-sector price quotes allows the City to gauge whether the potential may exist to save money on a particular service and finding increased efficiency in-house and more competitive contracting. However, a number of factors will influence the ultimate cost saving results including:

- the vendor's response to a Request for Proposal may be substantially higher or lower than the quote it provides once it is clear what the volume of work is and what the City's actual requirements are; and
- careful analysis of avoidable and unavoidable costs will determine what costs change in the short term versus the long term.[1]

We found that principal DAS' customers, departments' fleet coordinators, are generally very satisfied with the quality and convenience of the City's vehicle maintenance services. Two non-City customers, Metro Vanpool and the King County Health Department chose to use DAS services.

Analyzing DAS' performance over time in regard to quality, timeliness, and efficiency and comparing it to the performance of other jurisdictions is difficult. Their information systems are not set up to provide the historical data for the five performance measures we requested. However, beginning in March 1997, Fleet Services Division managers will report their respective unit's performance against a chosen set of performance indicators and target goals to the Director of the Department of Administrative Services. We

[1] Our audit report Making Effective Use of Managed Competition (January 11, 1995) and the City's accepted cost comparison methodology describe the analytical approach a department needs to take once a service is identified as a candidate for managed competition.

identified two additional measures that DAS should include in their regular reporting schedule that measure work quality and mechanic efficiency.

We also recommend that the Division:

- Develop a methodology for conducting comprehensive cost comparisons each biennium with vendors and other jurisdictions for services, including repairs to Fire Department and other specialized equipment;
- Determine ways to reduce costs and increase efficiencies to ensure its costs are competitive with private vendors. We also recommend that DAS increase the use of vendors for services where its costs cannot be reduced sufficiently to be competitive.[2] Fleet Services should follow the City's agreed upon cost comparison methodology.

DAS should report the results of the above recommendations to the City Council by the end of first quarter of 1997. The Office of City Auditor is available to DAS for any assistance that it might need.

[2] In Seattle's cost methodology, "competitiveness" includes non-cost factors such as diversity of the workforce, wages and benefits, expertise of the labor force and assessment of the relative quality of work.

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## PURPOSE

The City spends over $7.6 million a year on vehicle maintenance. At the request of the City Council and the Department of Administrative Services (DAS), we reviewed the Department's in-house vehicle maintenance services to:

- compare in-house costs for selected services with private-sector prices;
- obtain customer feedback on the quality, cost, convenience and timeliness of services, along with performance-measure data; and
- identify additional performance measures and industry benchmarks to assist the Department in monitoring its performance.

## BACKGROUND

### The Fleet Services Division Manages an Extensive Vehicle Maintenance Program

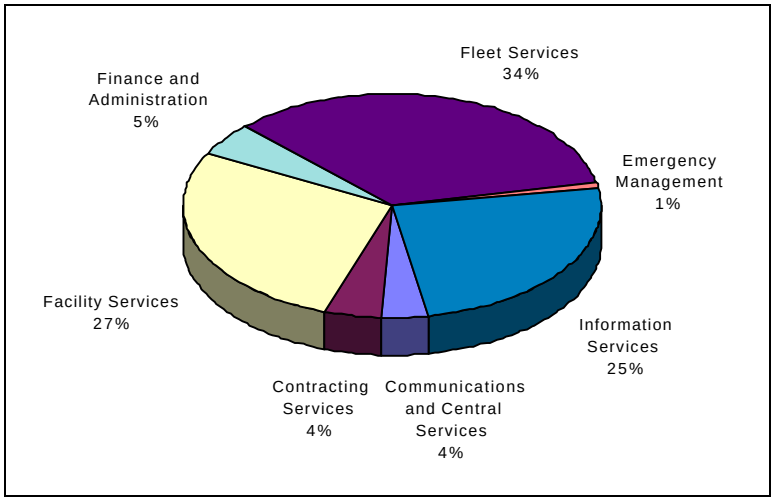
The Department of Administrative Services' Fleet Services Division maintains over 5,000 vehicles and other mechanical items for the City of Seattle. In 1995, in addition to maintaining 3,107 vehicles which it owned and leased[3] to other City departments, the Fleet Services Division also maintained approximately 2,000 additional vehicles and other mechanical items, such as aerial devices, derrick diggers and dump trucks, which other departments owned. In addition, the Division serviced vehicles for the King County Department of Health and for the King County Department of Metropolitan Service's van-pool program.

The Fleet Services Division maintains 144 major classes of vehicles, ranging from sedans to lawn mowers to fire trucks. Because this mix of vehicles and equipment is complex, it poses significant management and maintenance challenges. The eight most common types of vehicles in the fleet (subcompact sedans, pickups, minivans, compact pickups, cargo vans, patrol cars, walk-in vans, and compact sedans) together accounted for 62 percent of the vehicles in the DAS-owned fleet in 1995. Addendum B provides an overview of the City's 1995 vehicle maintenance costs by vehicle type.

[3] DAS leases the vehicles it owns to departments on a monthly basis. DAS lease rates cover maintenance and repair cost, depreciation, debt or replacement cost and overhead. For many years, DAS has calculated average rates by department for each class of vehicle, but for the 1997-98 biennium DAS is instituting individual rates for each vehicle. DAS managers believe this will give departments more detailed information to use in determining the most efficient size and composition of their fleets.

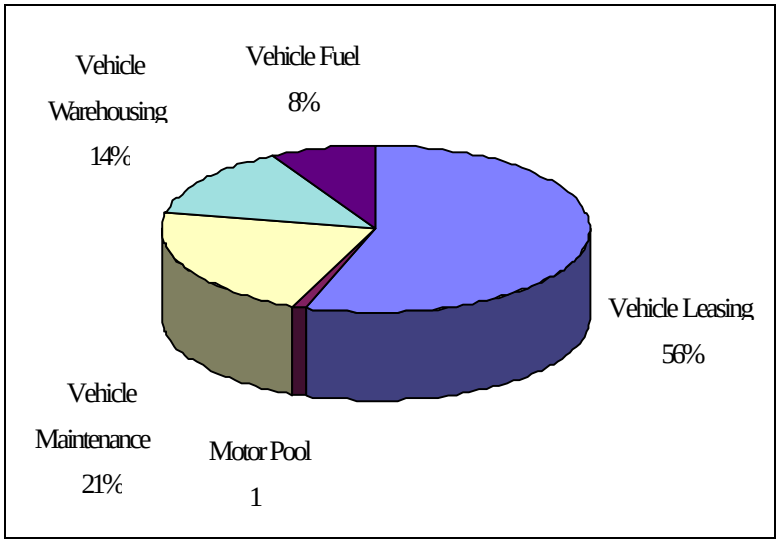
As Figure 1 shows, the Fleet Services Division's 1996 operating budget of $35.5 million represented 34 percent of DAS' overall operating budget of $103.9 million.

Figure 1: 1996 DAS Operating Budget




As reflected in Figure 2, the Fleet Services Division designated 21 percent of its 1996 operating budget for vehicle maintenance.

Figure 2: 1996 DAS Fleet Services Operating Budget




The Division's vehicle maintenance operating budgets for the years 1990-96 showed that the budgets (adjusted for inflation) reflected changes in total number of vehicles serviced. The budget amounts for 1995 and 1996 respectively were $7.8 million and $7.6 million.

The Fleet Services Division manages shops at four sites in the Seattle area: the Municipal Garage, the South Service Center, Haller Lake, and Charles Street. Together, these shops employ 123 City personnel. Each site specializes in certain types of work:

- The Municipal Garage services 400-500 general purpose vehicles and operates a 45-vehicle motor pool, with additional loaners for employees whose vehicles are receiving service.
- The South Service Center maintains and repairs heavy equipment, such as City Light's aerial equipment.
- The Haller Lake Shop services mostly patrol cars, fire equipment, Seattle City Light line equipment, and vehicles owned or leased by the Department of Parks and Recreation or the Health Department.
- The Charles Street complex handles the majority of large repairs for all departments south of the Ship Canal and all new vehicle in-service work. It offers three separate facilities: (1) the Tire Shop, (2) the Fire Garage, and (3) the main maintenance facility, which includes five other shops (the Car Shop, the Truck Shop, the Machine Shop, the Metal Shop, and the Paint and Body Shop).

## The Fleet Services Division Contracted Out About One Million Dollars of Work in 1995

The Fleet Services Division contracts out about $1 million of maintenance work each year. The Division contracts for specialized services it knows it can procure more cost effectively from private vendors (for example, engine rebuilding and glass and upholstery work) and as a means of reducing workload peaks.

## Most Jurisdictions Nationwide Maintain In-House Vehicle Maintenance Services

A 1994 survey of over a hundred government fleet managers throughout the continental United States showed that most local governments maintain their vehicles in-house. Approximately 98 percent of the West Coast respondents reported maintaining their vehicles in-house. However, according to one West Coast fleet-management consultant, an increasing number of municipalities are benchmarking themselves against private industry--as well as the public sector--and contracting out more work. A second fleet management consultant told us that he was aware of at least forty to sixty cities nationwide that contract out all their vehicle maintenance, including Fort Lauderdale, Florida, San Mateo, California, and Des Moines, Iowa.

## SCOPE AND METHODOLOGY

To perform our review, we developed methodologies for selecting and comparing vehicle maintenance services, obtaining customer feedback and performance data, and identifying additional performance measures.

### Selecting And Comparing Vehicle Maintenance Services

Because of the complexity and range of the Division's work and the effort and time required for detailed comparative cost analyses, we limited our detailed study to six high cost vehicle maintenance services. In 1995, the City spent approximately $759,111 (about 10 percent) of its vehicle maintenance budget on these six services. We had originally intended to study nine services but were unable to complete our comparative cost analyses for three services due to methodological difficulties.[4] Because we selected judgmentally the six services we studied, we cannot generalize the results of our work to all of the City's vehicle maintenance services. Because this study was requested by DAS and intended as a collaboration, the Fleet Services Division reviewed our methodology in advance and agreed it was a reasonable approach.

To obtain more detailed, descriptive information about each of the six services we studied, we interviewed shop personnel from the Fleet Services Division and reviewed work orders. For four of the six services we selected, we obtained price quotes from vendors. For the remaining two services, we developed alternative ways to compare costs because either the nature of the work or the quality and completeness of the work varied significantly from job to job.

- For one service the Fleet Services Division selected three City vehicles scheduled for this type of repair. We then obtained cost estimates from both an independent appraiser and the Division and a price quote from a comparable local shop. Finally, we obtained the actual costs of the work.
- For the other service the Fleet Services Division selected six comparable City vehicles, serviced three in-house and sent three to local vendors. This methodology gave us actual cost data for both in-house and vendor services. To ensure that we were comparing services of similar quality, senior mechanics of the Fleet Services Division evaluated all work performed. We could not structure the test to guarantee that

[4] We were unable to complete our cost comparisons for two services because (1) variations in the highly specialized work made it difficult to identify a set of standardized services for which to gather and compare cost information; and (2) the vendor pool from which to gather cost information is very small. We were unable to complete a cost comparison for the third service because DAS did not handle this type of repair during the period in which we conducted our work.

the senior mechanics would not know where each vehicle had received its servicing.

For a complete description of our methodology, see Addendum A.

## Obtaining Customer Feedback

To obtain broader information on the costs and performance (including quality, timeliness, and convenience) of the City's vehicle maintenance program, we

- interviewed the fleet coordinators from nine major City departments and two outside entities that contract with the City for vehicle maintenance services; and
- obtained Fleet Services Division data on several performance measures.

## Identifying Performance Measures

To identify additional possible performance measures for Fleet Services Division managers to use in evaluating their vehicle maintenance services on a regular basis, we

- contacted the National Association of Fleet Administrators, fleet management consultants, and fleet managers from local jurisdictions; and
- researched industry standards and benchmarks.

We conducted our work in accordance with generally accepted government auditing standards.

## RESULTS OF OUR WORK

### FLEET SERVICES DIVISION MAY BE ABLE TO REDUCE THE COST OF SOME VEHICLE MAINTENANCE SERVICES

For the six vehicle-maintenance services we examined, the Fleet Services Division may be able to reduce its costs because at least one vendor price quote was lower than the Division's costs. For three of the services, the Division's costs exceeded the average of the vendor price quotes we obtained. For two other services, the Division's costs were lower than the average vendor price quote. Although we could not directly compare the Division's costs for the sixth service with vendor prices, the Division's cost estimate exceeded vendor price quotes.

In-house costs were approximately $114,000 (15 percent of $760,000) greater than the vendors' lowest price quotes. (See Addendum C.) Comparing in-house costs to private-sector price quotes allows the City to gauge whether the potential may exist to save money on a particular service by finding increased efficiency in-house and more competitive contracting. However, a number of factors will influence the ultimate cost saving results including:

- the vendor's response to a Request for Proposal may be substantially higher or lower than the quote it provides once it is clear what the volume of work is and the City's actual requirements; and
- careful analysis of avoidable and unavoidable costs will determine what costs change in the short term versus the long term.[5]

### City Costs Exceed Average Price Quotes for Three Services

The Fleet Services Division's costs exceeded the average price quotes we obtained from private vendors for the following three services:

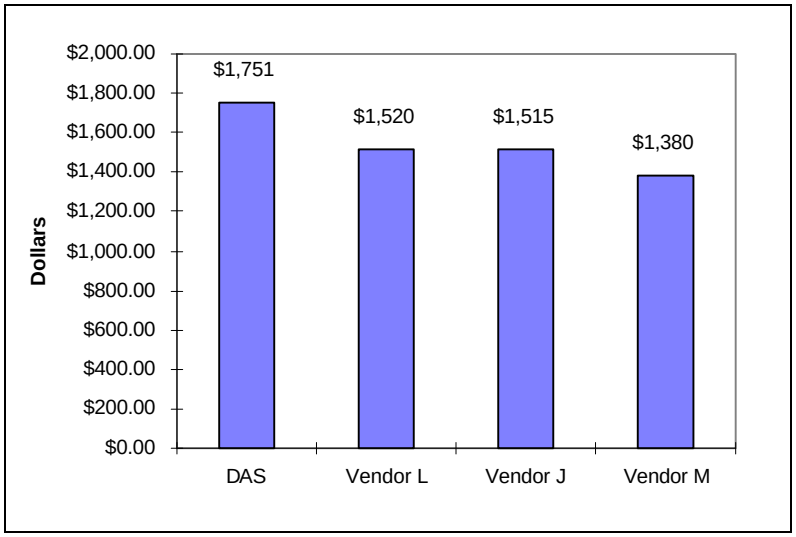
- relining brakes on walk-in vans,
- replacing tires on patrol cars, and
- replacing tires on dump trucks.

[5] Our audit report Making Effective Use of Managed Competition (January 11, 1996) and the City's accepted cost comparison methodology describes the analytical approach a department needs to take once a service is identified as a candidate for managed competition.

***Relining Brakes on Walk-in Vans***[6]

The Fleet Services Division costs for relining brakes on walk-in vans ($1,751) was 19 percent higher than the average price quotes we received from the vendors we surveyed ($1,472). Figure 3 provides a complete cost comparison. (Addendum D, offers more detailed information.) In 1995, the City spent $24,000 (less than one percent) of its vehicle maintenance budget on relining brakes on walk-in vans.

**Figure 3: Cost Comparison for Relining Walk-In Van Brakes**




***Replacing Tires on Patrol Cars***[7]

The Fleet Services Division costs for replacing tires on patrol cars ($387) were 13 percent higher than the average price quote from the vendors we surveyed ($343). Of the four vendors we surveyed, three offered fairly comparable quotes, and one offered a quote significantly greater than the other three vendors and, indeed, greater than the Division's actual costs of performing this work[8]. Without the high-cost vendor's price quote, the Division's cost would have exceeded the average vendor price quote by 55 percent. Figure 4 provides a complete cost comparison. (Addendum D, offers more detailed information.) In 1995, the City spent $170,955 (two percent) of its vehicle

[6] For the front disk brakes this work included replacing the pads and rotors, repacking the wheel bearings and replacing the grease seal, and changing the brake fluid, but not replacing or rebuilding the calipers. For the rear drum brakes, it included replacing the shoes, machining/replacing the drums, and changing the brake fluid, but not replacing or rebuilding the cylinders.

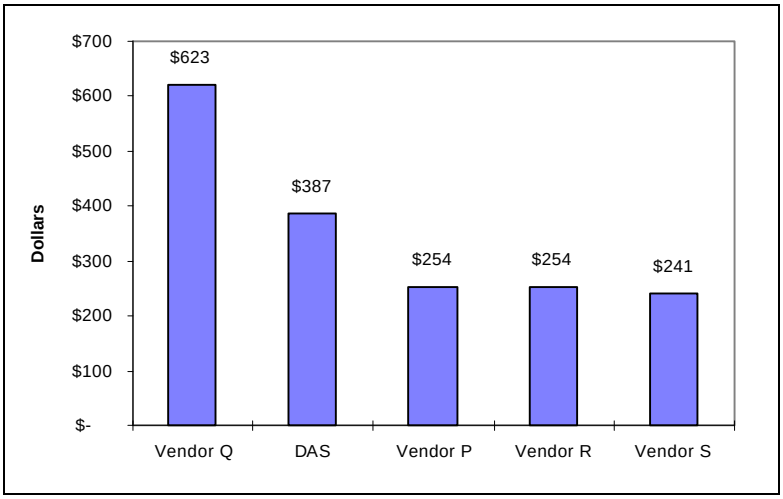
[7] This work included mounting and balancing all four tires. We specified Goodyear speed-rated tires, Size 225/70R15, GT +4, H rated, but accepted price quotes for other brands of tires as long as they met the same specifications.

[8] The high-cost vendor told us the tire manufacturer he represents does not give as significant a price break to governments as do other manufacturers.

maintenance budget on replacing tires on patrol cars.

The higher Fleet Services Division costs may be partly due to the Division's use of a specific manufacturer's tires to protect the City's warranties and product-liability protections for its patrol cars. The car manufacturer is now recommending a cheaper tire on its 1995 cars, and the Division has inquired whether the manufacturer would make the same recommendations for its 1994 and earlier cars. Division managers plan to use the cheaper tire in the future to the extent approved by the patrol car manufacturer.

**Figure 4: Cost Comparison for Replacing Tires on Patrol Cars**




***Replacing Dump Truck Tires***[9]

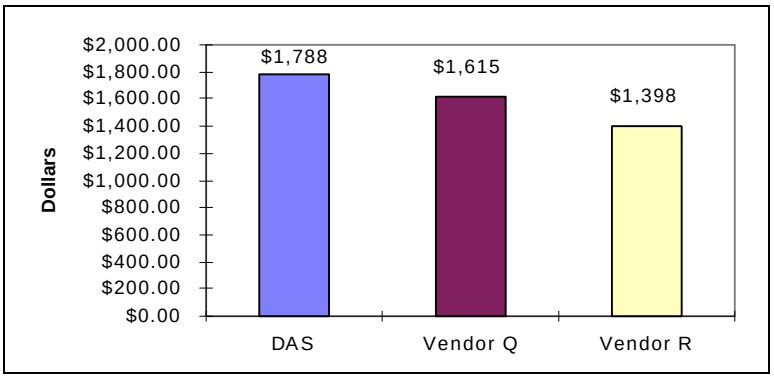
The Fleet Services Division's cost for replacing tires on dump trucks ($1,788) was 19 percent higher than the average price quote from the vendors we surveyed ($1,507). Both the vendors we surveyed offered prices lower than the Division's cost. Figure 5 provides a complete cost comparison. (Addendum D, offers more detailed information.) In 1995, the City spent $100,444 (one percent) of its vehicle maintenance budget on replacing dump truck tires.

[9] This work included mounting all four tires and balancing the front ones. We called for dump truck tires meeting the following specifications:

- Front tires: 315/80R-22.5XZA, 385/65R-22.5XZA or XZY, and 425/65R-22.5XZY or XZYT, tread width no greater than 600 pounds per inch.
- Rear tires: Recaps (City provides the casing), Size 11R22.5HWRC, minimum 24/32 depth (mud and snow), gripper design.

We accepted price quotes for other brands of tires as long as they met the same specifications.

**Figure 5: Cost Comparison for Replacing Dump Truck Tires**




## City Costs For Two Services Competitive With Average Vendor Price Quotes

Fleet Services costs for the following two vehicle maintenance services were competitive with or lower than the average vendor price quote:

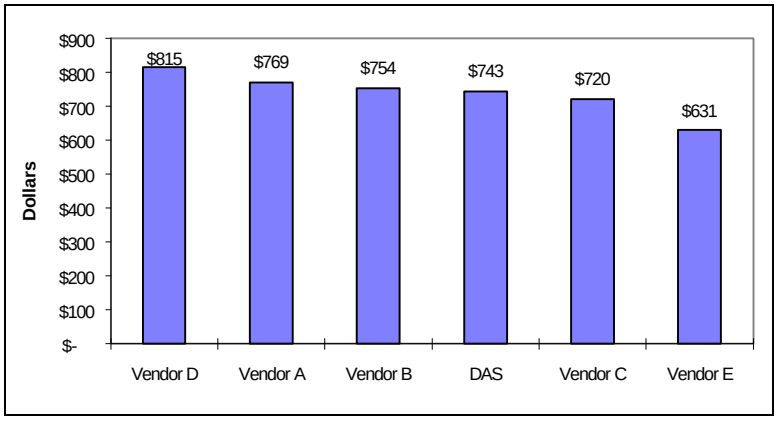
- relining brakes on patrol cars, and
- preventative maintenance on subcompact sedans.

For both services, vendors submitted price quotes lower than the Division's costs.

### *Relining Brakes on Patrol Cars*[10]

Fleet Services costs for relining brakes on patrol cars ($743) were competitive with the average price quote from the vendors we surveyed ($738). Two of the five vendors quoted prices lower than the Division's costs, and three quoted prices which were higher. Figure 6 provides a complete cost comparison. (Addendum D, offers more detailed information.) In 1995, the City spent $146,810 (two percent) of its vehicle maintenance budget on relining brakes on patrol cars.

**Figure 6: Cost Comparison for Relining Brakes on Patrol Cars**



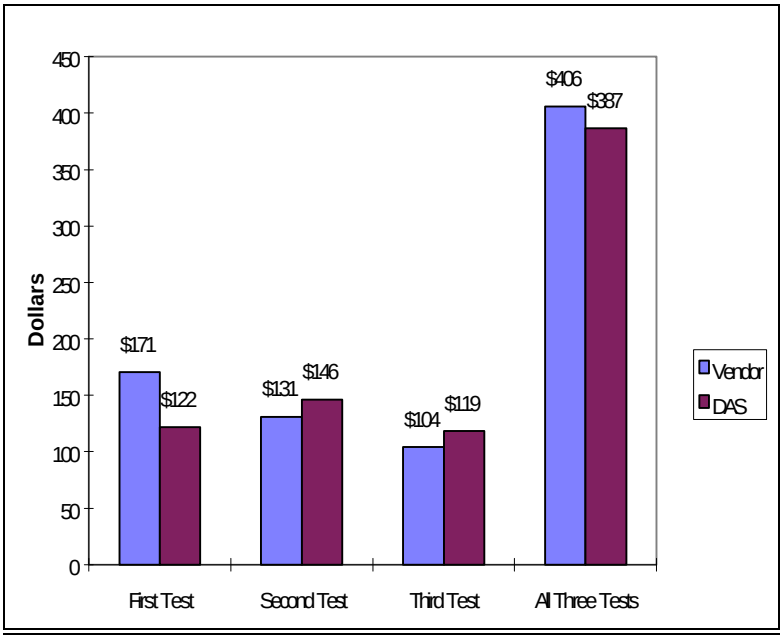

[10]For the nature of this work, see the footnote 5 on relining walk-in van brakes.

***Preventative Maintenance on Subcompact Sedans***

Fleet Services' average cost for preventative maintenance on subcompact sedans was five percent lower than the average of the prices which outside vendors charged the City. Average Division costs were 29 percent lower than one vendor's price but exceeded the prices which the two other vendors charged by 12 percent and 14 percent respectively.

To ensure we were comparing services of similar quality, Fleet Services senior mechanics performed quality-control inspections on the three sedans the Division and the outside vendors each serviced. These inspections found no defects/errors in the work performed in-house and an average of 3.67 defects/errors per sedan in the work which the vendors performed.[11] One reason for this might be that the Division's mechanics who serviced the vehicles were familiar with the Division's existing performance standards. Figure 7 provides a complete cost comparison. (Addendum D, offers more detailed information.) In 1995, the City spent $92,360 (one percent) of its vehicle maintenance budget on preventative maintenance on subcompact sedans.

Figure 7: Cost Comparison for Preventative Maintenance on Subcompact Sedans




## Estimated Costs for Body

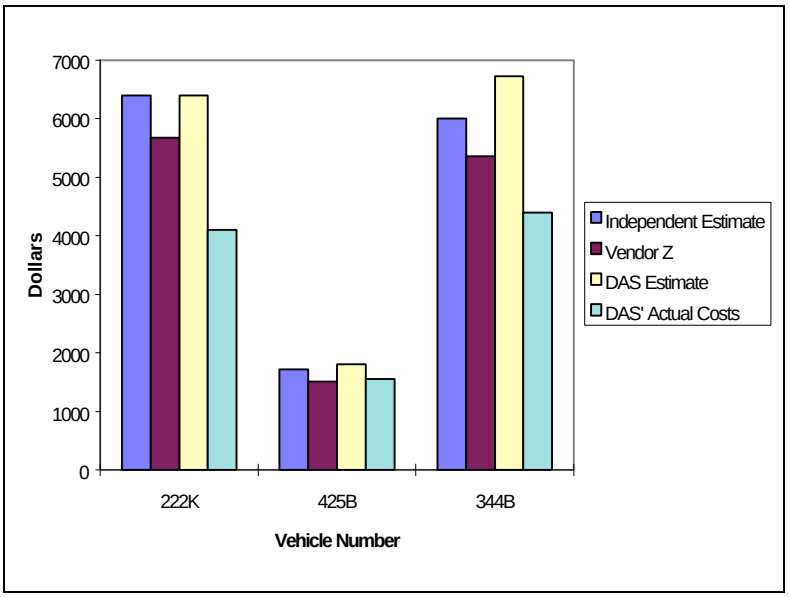
The Fleet Services Division's estimated costs for body work on

[11] As explained in the Scope and Methodology Section of this report (Addendum A), we were unable to control for potential bias -- particularly unintentional bias -- in the quality-control checks.

## Work on Patrol Cars

patrol cars averaged 12 percent higher than the average cost estimates of the independent appraiser and the price quote from the private-sector vendor we surveyed, yet DAS' actual costs were lower than estimated. All three sets of estimates assumed the use of new replacement parts. In performing the work, however, Fleet Services subsequently used parts it had salvaged from other vehicles for two of the vehicles. Fleet Services' actual costs were 25 percent below the average cost estimates of the independent appraiser and the price quote from the private-sector vendor. Because we did not obtain cost estimates based on the use of salvaged parts, we do not know how the City's actual costs compare with those of the private sector. Division officials told us that on average they are able to salvage parts about five percent of the time. Figure 8 provides a complete cost comparison. (Addendum D, offers more detailed information.) In 1995, the City spent $224,458 (three percent) of its vehicle maintenance budget on body work for patrol cars.

**Figure 8: Cost Comparison for Body Work on Patrol Cars**




## Many Measures of Performance Important in Determining Overall Effectiveness of Vehicle Maintenance Program

Important considerations in evaluating vehicle-maintenance costs include the quality, convenience, and timeliness of the services and the service provider's ability to adequately address security needs or handle emergencies. To incorporate these factors into a broader view of the Fleet Services Division's costs, we obtained

- feedback from the fleet coordinators who are the Division's principal customers,
- information from vendors and the Division on specific

aspects of each of their service, and

- the Division's available data on a very limited set of performance measures.

The Fleet Services Division plans to implement a more comprehensive set of performance measures in March 1997.

***Fleet Coordinators Satisfied With Service Quality And Convenience***

In general, the fleet coordinators we interviewed told us they were very satisfied with the quality and convenience of the City's vehicle maintenance services. They described these services as, among other things, "outstanding," "clearly satisfactory on all counts," and "good quality maintenance and repair work." Although some fleet coordinators expressed satisfaction with the timeliness of the services, others voiced concern that some services took too long--specifically, preventative maintenance and preparing new vehicles for use. In general, the fleet coordinators were less certain about whether the City's vehicle maintenance costs were competitive, and some said they would appreciate receiving cost-comparison information. A few fleet coordinators told us that they thought the costs were too high. Their perception was that the high costs were due to overhead charges and the mark-up on parts. However, the fact that two of the Division's customers, the King County Health Department and Metro Vanpool, are not required to use the Division's services but choose to do so indicates they consider the Division competitive with other potential vendors in the value they obtain for their costs. Addendum F provides more details on the fleet coordinators' comments.

***Comparison of DAS and Vendor Service Options***

For three of the tasks/subtasks whose costs we reviewed, vendors described special optional features (for example, volume discounts, pick-up and delivery, ability to handle drop-in work) they offered in their service. In Addendum E we present these features and compare them with the services the Fleet Services Division provides. DAS also provided us with a comprehensive, descriptive list of the customer services the Division provides, such as: emergency service, loaner cars, car washes, customization/design/fabrication work, and spare keys. Addendum H provides a complete copy of this list. In addition, the Fleet Services Division attempts to keep vehicle downtime to a minimum by performing many routine repairs on night shift and not starting routine maintenance until parts and labor are readily available.

***Selected Performance Measures for the Fleet Services Division***

Based on the information DAS officials provided us for the first half of 1996, we calculated

- an overall productivity rate of 87 percent for Division

mechanics, representing the percent of total labor hours which the Division billed to its customers; and

- a 50/50 ratio of breakdown repair hours to preventative maintenance hours, exactly the target goal Division managers set for 1997.[12] This figure measures the effectiveness of the preventative maintenance program in reducing the need for unscheduled repairs.

We also asked the Division for three other measures:

- Percent of preventative maintenance orders completed on time;
- Percent of repairs requiring rework within 30 days (a measure of work quality);
- Some measure of downtime or turnaround time (as a measure of efficiency).

The Division could not provide these measures. However, the Division did provide three alternative measures, which we did not verify:

- the number of overdue preventative maintenance services per year (using these figures, Division officials estimate the Division performs 90 percent of its roughly 10,000 preventative maintenance services on time each year);
- the number of hours of rework the Division bills itself each year (according to Division officials, this figure is less than one percent of all the work the Division performs); and
- average turn-around times for three of the six services whose costs we studied in this report. (See Addendum E.) The Division is currently implementing systems that in the future will track the downtime indicator we requested.

As a means of reviewing trends in the Division's performance and benchmarking against other jurisdictions, we requested 1993-1995 data for the five performance measures we originally sought. However, Division management told us that their systems were not set up to provide such historical data.

***Fleet Services Division to Implement Performance Measures in March 1997***

Fleet Services Division managers have chosen a set of performance indicators and target goals to help them evaluate their performance on a regular basis. Addendum G provides a complete list of these performance indicators and target goals.

[12] DAS managers chose this target after talking with industry experts and consultants, who told them that the ratio varies widely from fleet to fleet, depending on the composition of the fleet. For example, a fleet of vehicles that are all the same, such as UPS delivery vehicles, might be able to achieve a 60:40 ratio. A fleet of totally diverse vehicles might have a ratio as low as 20:80. Because the City's fleet falls somewhere between these two extremes, DAS managers chose the midpoint as a target range, but plan to try and improve on that in the future. According to King County's Fleet Administrator, their ratio is 52:48.

To select these measures, Division managers evaluated the following industry standards and benchmarks:

- Benchmarking for Quality in Public Service Fleets, a 1993 National Association of Fleet Administrators Study; and
- Best Fleet Management Practices and Performance Measures Manual, a 1994 study prepared by Spectrum Consultants, Inc. and California Fleet News Publishing.

They also used information they obtained from the International County and Municipal Association and from their own experience and expertise. In March 1997, the Fleet Services Division will begin reporting its performance against these indicators to the Director of the Department of Administrative Services on a quarterly basis.

We agree that the Division managers have selected important measures of performance, particularly because they include indicators of downtime, staffing efficiency, cost and customer satisfaction. The decision to use these indicators on a regular basis will allow managers to

- use more complete information to improve management decision making;
- benchmark themselves against industry standards; and
- demonstrate their effectiveness in meeting their target goals.

We recommend that the Fleet Services Division gather and report data on two additional performance indicators. These indicators measure work quality and mechanic efficiency respectively:

- Percent repairs requiring rework within 30 days; and
- The average length of time needed to complete a specific repair or maintenance task.

Comparative data for both these measures should be available from either trade associations, other local governments, or private industry. We recommend that DAS try to identify comparative or historical data for all their chosen performance indicators and benchmark their performance against these data in their reports.

## CONCLUSION AND EXECUTIVE ACTION PLAN

In our cost comparisons of Fleet Services' six vehicle maintenance services totaling $760,000 in expenditures, we found opportunities for Fleet Services to find increased efficiency in-house and more competitive contracting. Fleet Services' costs were approximately $114,000 (15 percent of $760,000) greater than the vendors' lowest price quotes.

Working together, the Department of Administrative Services'

Fleet Services Division and the Office of City Auditor identified two additional steps the Division can take to ensure that its vehicle maintenance services are as cost-effective and efficient as possible:

- Develop a methodology for conducting comprehensive cost comparisons for services on a biennial basis. This work will include exploring all avenues for obtaining comparative cost information for specialized equipment, and working with the Seattle Fire Department to develop a way to benchmark the City's costs of maintaining fire equipment with those of other jurisdictions.
- Determine ways to reduce costs and increase efficiency to ensure its costs are competitive with private vendors. Analyze why Fleet Services Division costs appear to be greater than vendor prices or price quotes for the services we examined. We also recommend that DAS increase the use of vendors for services where its costs cannot be reduced sufficiently to be competitive.[13] Fleet Services should follow the City's agreed upon cost comparison methodology.

DAS should report the results of the above recommendations to the City Council by the end of first quarter of 1997. The Office of City Auditor is available to DAS for any assistance that it might need.

[13] In Seattle's cost methodology, "competitiveness" includes non-cost factors such as diversity of the workforce, wages and benefits, expertise of the labor force and assessment of the relative quality of work.

## ADDENDA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## Methodology For Selecting And Comparing Vehicle Maintenance Services

To select the vehicle maintenance services we wanted to compare, we obtained data on the City's 1995 total maintenance and repair costs (excluding accident repairs) by type of vehicle (class code). We then narrowed our focus to the 14 vehicle classes with the highest 1995 maintenance and repair costs: patrol cars, fire pumpers, subcompact sedans, street sweepers, dump trucks, pickups, ladder trucks, walk-in vans, minivans, vactors, compact pickups, aid cars, cargo vans, and backhoes. Together these 14 classes accounted for 68 percent of the 1995 vehicle maintenance expenditures and for 68 percent of the City's vehicles. The 14 classes also included the top 13 classes in labor hours and labor costs and the top 8 classes for replacement parts costs.

We then requested data on maintenance and repair costs by task and subtask for these fourteen types of vehicles[1] so as to identify a set of discrete services for which outside vendors could give us price quotes.[2] This created a universe of 866 tasks, each with multiple subtasks.[3] We then judgmentally limited our detailed study to nine of the highest cost services (tasks/subtasks) because of the effort and time required to (1) obtain in-depth task/subtask descriptions for each of the services, (2) identify the relevant vendor pools, and (3) gather cost data from each vendor. In 1995, the City spent approximately $909,000 (14 percent) on these nine services. In selecting these nine services, however, we not only considered the cost and frequency of services but also sought to ensure that we reviewed a wide range of services -- both routine and more specialized. Because we chose our sample judgmentally, we cannot generalize the results of our work to all of the City's vehicle maintenance services. The nine services we selected were:

- Auto body and paint work on patrol cars
- Replacing tires on patrol cars
- Replacing front and rear brakes on patrol cars
- Preventative maintenance on subcompact sedans
- Overhauling, replacing and repairing fire pumps on fire pumpers
- Replacing tires on dump trucks
- Replacing or repairing special components on vactors
- Auto body and paint work on walk-in vans
- Replacing front and rear brakes on walk-in vans

To obtain more detailed, descriptive information about each of these services, we interviewed shop personnel from the Fleet Services Division and reviewed work orders. To identify private sector vendors, we requested vendor lists for the services listed above from the managers of six state or local vehicle

[1] DAS' automated database, the Equipment Management System, contains 10 major repair task codes, 121 tasks within these codes, and numerous subtasks within each task code.

[2] For example, auto body work, the highest cost task for patrol cars, has such subtasks as inspecting, painting, replacing and servicing auto bodies and repairing water and air leaks. To obtain cost estimates from outside vendors, we had to identify services at the subtask level.

[3] For example, in 1995 the City spent approximately $1.1 million on vehicle maintenance for patrol cars (including accident repair). The work fell into 59 task categories, with a high of $224,458 for auto body work and a low of $41 for work on the drive train.

maintenance shops and one private company.[4] We also used data from the American Automobile Association's list of approved local vendors and obtained the names of vendors with whom the Fleet Services Division currently has blanket contracts for overflow work. We then narrowed this consolidated list of possible vendors to a final list by assessing whether the vendor was conveniently located and could supply the volume of services needed.

For six of the nine services we selected, we obtained or attempted to obtain cost data from the private sector by calling the vendors on our final list and asking them what they would charge to supply the selected services. We also asked about their turnaround times, their ability/willingness to pick up and deliver vehicles, their volume discounts, and their current capacity for taking on additional work. We were unable to verify this information against actual prices the vendors included in their existing blanket contracts with the City of Seattle because most of the contracts did not specify the price for a particular service; instead the contracts provided more general information, such as direct labor hour charge for a variety of services.

We were unable to complete our cost comparisons either for replacing/repairing special components on vactors or for repairing fire pumps because (1) both types of work are highly specialized and vary from job to job, making it difficult to identify a set of standardized services for which to gather and compare cost information; and (2) the vendor pool from which to gather cost information is very small. For example, for fire pump repair, we were able to identify only two private vendors providing this service; one is local, and the other, in Oregon. Both vendors told us that it is extremely difficult to estimate the costs for these types of repairs because every fire truck is different, and the time needed to remove the pump for repair can vary significantly from job to job. In addition, fleet maintenance managers from other local jurisdictions who service fire equipment told us that they could not provide comparative cost information for fire pump repair.

Similarly, only one local vendor services special components on vactors. Although this vendor provided price quotes for three specific types of repairs, the Fleet Services Division could not provide us with actual cost data for these same repairs because they had not recently completed any. Although we were not able to complete these cost analyses for this report, we are working with the Fleet Services Division to develop alternative methods so that the Division may make the cost comparisons for these two services within the year.

For the remaining three of the nine services we selected for cost comparisons, we used a different approach because either the nature of the work (body and paint work on patrol cars and walk-in vans) or the quality and completeness of the work (preventative maintenance) can vary significantly from job to job. For these three services, we worked with the Fleet Services Division to develop alternative ways to compare costs:

- To obtain cost comparison data for body and paint work on patrol cars, the Fleet Services Division selected three City vehicles scheduled for this type of repair. We then asked both an independent appraiser and the Division to estimate the cost of repairing each vehicle. To help assure the accuracy and objectivity of the appraiser's estimates, we carefully screened his experience and qualifications, asked him to use competitive labor market and standard industry rates in the estimates, and required him to send the estimates directly to our office. To ascertain whether these estimates represented the lowest cost possible, we asked a local body and paint shop with considerable experience working for other local public entities to review the estimates and provide price quotes for the same work at volume-discount rates. Finally, after the Division performed the body and paint work on each vehicle, we obtained the actual costs and compared them to all three estimates. We were unable to complete a

[4] We contacted the State of Washington, the Washington State Patrol, the University of Washington, King County Department of Metropolitan Services, King County Department of Transportation, the City of Bellevue, and the Boeing Company.

cost comparison for body and paint work on walk-in vans because the City had scheduled no walk-in vans for body repair work during the period in which we conducted our work.

- To obtain cost comparison data for preventative maintenance on subcompact sedans, the Fleet Services Division selected six comparable City vehicles due for this service and sent two to its Charles Street shop for service, one to its Municipal Garage shop, and three to local vendors. The Division instructed all three service providers to complete its preventative maintenance B checklist and look for any other problems that needed addressing. This methodology gave us actual cost data for both in-house and vendor services. Finally, to ensure that we were comparing services of similar quality, we used senior mechanics of the Fleet Services Division to evaluate all the work performed. These mechanics checked each vehicle against the preventative maintenance B checklist to determine whether the work performed (a) complied with the checklist, (b) identified all other potential problems, and (c) identified only legitimate problems. Although we had originally structured the test so that the senior mechanics would not know where each vehicle had received its servicing, a Division official told us the current structure of the Division's operations made this impossible. Because this methodological flaw allowed for unintentional bias in the quality checks, the results of these checks should be viewed with caution.

## City of Seattle 1995 Vehicle Maintenance Costs by Vehicle Type

| Description | # Veh. | Parts $ | Labor $ | HW $ | Outside $ | Total $ |
|---|---|---|---|---|---|---|
| Patrol Cars | 156 | $307,906 | $450,511 | $8,772 | $82,552 | $849,741 |
| Pumper, Fire | 45 | $164,014 | $266,018 | $1,741 | $78,138 | $509,911 |
| Sedan, Subcompact | 856 | $117,668 | $363,627 | $9,750 | $11,168 | $502,213 |
| Street Sweeper | 10 | $135,788 | $203,451 | $2,074 | $18,809 | $360,122 |
| Dump Trucks | 91 | $108,118 | $212,060 | $2,985 | $34,896 | $358,059 |
| Pickups | 233 | $79,718 | $193,809 | $3,926 | $12,141 | $289,594 |
| Truck, Ladder | 15 | $72,161 | $175,038 | $639 | $24,244 | $272,082 |
| Walk-in Vans | 114 | $53,271 | $138,402 | $2,286 | $10,783 | $204,740 |
| MiniVans | 199 | $48,149 | $131,842 | $3,076 | $17,892 | $200,959 |
| Vactors | 10 | $70,778 | $99,296 | $1,088 | $7,840 | $179,002 |
| Compact Pickups | 168 | $46,992 | $120,151 | $2,562 | $6,916 | $176,621 |
| Aid Cars | 16 | $57,948 | $81,927 | $907 | $24,749 | $165,531 |
| Cargo Vans | 167 | $38,633 | $114,761 | $2,397 | $6,619 | $162,410 |
| Backhoes | 20 | $40,245 | $82,858 | $988 | $30,547 | $154,639 |
| Sedan, Full-size | 85 | $43,153 | $82,775 | $1,938 | $12,749 | $140,616 |
| Motorcycle | 39 | $62,059 | $71,322 | $2,033 | $3,892 | $139,306 |
| Scooter, Traffic | 54 | $31,751 | $52,661 | $1,714 | $5,175 | $91,301 |
| Pickups, 4X4 | 83 | $27,927 | $53,564 | $1,193 | $7,605 | $90,290 |
| Cranes | 10 | $15,859 | $53,257 | $427 | $11,326 | $80,869 |
| Truck, Aerial Lift, ladder, 37' - 50' | 1 | $17,776 | $39,088 | $46 | $20,902 | $77,811 |
| Sedan, Compact | 100 | $17,289 | $44,960 | $1,371 | $1,205 | $64,825 |
| Flatbed, 15001-24000 GVW | 30 | $14,700 | $45,101 | $775 | $2,198 | $62,774 |
| Truck, Flatbed, <15000 GVW | 55 | $14,679 | $44,536 | $667 | $1,776 | $61,658 |
| Loader, Articulated Frame | 8 | $25,743 | $25,652 | $279 | $756 | $52,429 |
| Air Compressor, Trailer Mounted | 34 | $13,852 | $29,060 | $621 | $8,597 | $52,130 |
| Grader, Motor 4X6, Articulated | 7 | $16,540 | $29,473 | $262 | $1,068 | $47,343 |
| Forklifts | 24 | $7,453 | $24,539 | $391 | $2,125 | $34,508 |
| Truck, 15001 and Over w/Serv Body | 10 | $14,073 | $13,573 | $294 | $5,253 | $33,194 |
| Truck w/ Refuse Packer | 2 | $6,983 | $22,933 | $272 | $1,864 | $32,053 |
| Truck w/ Refuse Packer,> 20,000 GVW | 6 | $8,853 | $19,096 | $159 | $2,871 | $30,978 |
| Roller, Patch | 7 | $5,759 | $21,873 | $258 | $1,420 | $29,311 |
| Truck, Aerial Lift, articulated, 37'-50' | 3 | $5,323 | $19,260 | $201 | $4,264 | $29,048 |
| Trailer, 15001 GVW and Over | 13 | $10,157 | $14,700 | $160 | $3,959 | $28,975 |
| Scooter w/ Dump Body | 19 | $6,151 | $21,576 | $457 | $626 | $28,811 |
| Mower, Riding, Water Cooled Engine | 28 | $9,921 | $18,227 | $490 | $136 | $28,774 |

| Description | # Veh. | Parts $ | Labor $ | HW $ | Outside $ | Total $ |
|---|---|---|---|---|---|---|
| Compact Pickup, 4X4 w/ Accessories | 26 | $8,575 | $18,966 | $418 | $702 | $28,661 |
| Mower, Slope | 8 | $9,921 | $16,790 | $257 | $194 | $27,161 |
| Truck, Aerial Platform | 5 | $4,134 | $20,129 | $339 | $1,790 | $26,392 |
| Truck, 15000 GVW & Under, Emer | 3 | $5,390 | $14,867 | $486 | $5,367 | $26,110 |
| Truck, 15000 GVW & Under | 2 | $6,292 | $12,627 | $195 | $5,969 | $25,084 |
| Truck, Sewer Rodder Body | 2 | $9,080 | $12,906 | $154 | $1,370 | $23,509 |
| Mobile Mini Precinct | 3 | $5,693 | $12,455 | $142 | $5,101 | $23,391 |
| Full Size Pssgr. Van | 26 | $5,238 | $15,342 | $369 | $484 | $21,433 |
| Sweeper, Over 20 cu ft | 3 | $8,664 | $12,513 | $135 | $0 | $21,312 |
| Truck, 15000 GVW & Under | 20 | $6,208 | $13,600 | $308 | $1,120 | $21,236 |
| Sedan, Minicompact | 40 | $5,645 | $14,877 | $444 | $240 | $21,206 |
| Trailer, Implement, 15001 GVW & Over | 12 | $6,767 | $13,361 | $190 | $565 | $20,883 |
| Truck, Misc., 15001 GVW and Over | 3 | $7,182 | $11,830 | $155 | $674 | $19,841 |
| Trailer, 15000 GVW and Under | 36 | $3,633 | $15,598 | $319 | $245 | $19,795 |
| Tractor, w/ Accessories, 35 - 60 Hp | 11 | $4,265 | $14,146 | $153 | $1,115 | $19,679 |
| WalkIn Van w/ Telescopic Bucket | 2 | $3,738 | $13,012 | $206 | $2,642 | $19,597 |
| Truck, Combination Vactor/Jet Rodder | 1 | $7,580 | $11,623 | $152 | $0 | $19,355 |
| Truck w/ Flusher | 4 | $6,735 | $12,333 | $143 | $25 | $19,236 |
| Mower, Highway | 2 | $1,835 | $17,130 | $75 | $0 | $19,040 |
| Trailer, Pup Dump, 15001 GVW & Over | 8 | $3,965 | $12,598 | $281 | $109 | $16,954 |
| Chipper, Trailer Mounted | 5 | $2,797 | $11,925 | $127 | $177 | $15,026 |
| Truck, Animal Control Body | 6 | $3,971 | $9,164 | $189 | $84 | $13,408 |
| Mower, 16 Foot Rotary | 4 | $6,482 | $5,936 | $142 | $103 | $12,664 |
| Truck, Flatbed, 24001-30000 w/ Boom | 3 | $2,422 | $7,871 | $89 | $2,124 | $12,505 |
| Truck, Dump w/ Front End Loader | 3 | $4,150 | $7,770 | $114 | $135 | $12,169 |
| Paving Grinder | 1 | $6,624 | $5,236 | $35 | $126 | $12,021 |
| Pickup, 9000-14000 GVW, Body, Acc | 4 | $3,626 | $7,897 | $106 | $274 | $11,903 |
| Shovel, Track Mounted | 1 | $2,469 | $5,380 | $51 | $3,548 | $11,448 |
| Prisoner Van | 5 | $1,917 | $8,687 | $223 | $349 | $11,176 |
| Truck, Aerial Lift, articulated, up to 36' | 2 | $1,529 | $4,585 | $103 | $4,637 | $10,853 |
| Tractor, w/ Accessories, 35 - 60 Hp | 8 | $1,506 | $6,440 | $92 | $193 | $8,230 |
| Carryall, 5000-7500 GVW | 10 | $1,495 | $5,941 | $140 | $406 | $7,982 |
| Truck, 15001 and Over | 4 | $2,247 | $5,565 | $70 | $91 | $7,973 |
| Mower, Front Rotary Deck w/ Accessories | 4 | $4,181 | $3,620 | $98 | $0 | $7,898 |
| Prisoner Van | 4 | $2,370 | $4,526 | $80 | $752 | $7,728 |
| Spreader, Drop In, 5 Yd | 15 | $1,684 | $5,406 | $40 | $0 | $7,130 |
| Scooter, Electric | 4 | $1,331 | $5,300 | $79 | $336 | $7,047 |
| Paver, Asphalt | 1 | $2,153 | $4,706 | $20 | $0 | $6,879 |

| Description | # Veh. | Parts $ | Labor $ | HW $ | Outside $ | Total $ |
|---|---|---|---|---|---|---|
| Zamboni Ice Resurfacer | 1 | $1,142 | $5,327 | $33 | $0 | $6,501 |
| WalkIn Van w/ Platform or Bucket | 2 | $698 | $5,618 | $148 | $0 | $6,463 |
| Van, Cut Away 7801-14000 GVW | 3 | $1,293 | $4,691 | $49 | $318 | $6,351 |
| Mower, Reel, Tractor Mounted | 7 | $2,284 | $3,482 | $93 | $187 | $6,046 |
| Trailer, Traffic Warning | 4 | $1,684 | $3,302 | $62 | $581 | $5,629 |
| Air Compressor | 3 | $2,060 | $3,535 | $28 | $0 | $5,623 |
| Truck Tractor | 2 | $1,121 | $3,429 | $50 | $921 | $5,520 |
| Truck, Auger | 1 | $330 | $4,426 | $72 | $366 | $5,194 |
| Tractor, Tow, Pneumatic Tires | 1 | $1,293 | $3,578 | $52 | $0 | $4,923 |
| Scooter, General Purpose | 6 | $788 | $3,816 | $103 | $0 | $4,706 |
| Truck, Aerial Lift, articulated, 51' & Over | 1 | $1,126 | $3,472 | $77 | $21 | $4,696 |
| Truck, Reel | 1 | $407 | $3,509 | $51 | $701 | $4,668 |
| Aerial Lift, Self Propelled | 1 | $170 | $2,364 | $30 | $2,051 | $4,615 |
| Trailer, Implement, 15000 GVW & Under | 9 | $704 | $3,742 | $68 | $0 | $4,514 |
| Scooter w/ Accessories | 3 | $1,315 | $2,899 | $52 | $148 | $4,414 |
| Trailer, Crew | 3 | $634 | $2,968 | $40 | $743 | $4,385 |
| Truck, Traffic Line Marker | 4 | $1,597 | $2,624 | $56 | $94 | $4,371 |
| Pickup, 9000 - 14000 GVW | 2 | $1,508 | $2,639 | $33 | $0 | $4,180 |
| Pickup, 9000 - 14000 GVW, Serv Body | 5 | $1,055 | $2,968 | $88 | $0 | $4,111 |
| Cargo Van, Utility | 2 | $1,024 | $2,809 | $45 | $197 | $4,075 |
| Truck w/ Large Flusher | 1 | $772 | $3,154 | $35 | $0 | $3,961 |
| Sewer Drag Machine, Trailer Mounted | 2 | $1,990 | $1,908 | $15 | $0 | $3,913 |
| Tractor, Track Mounted, < 20000 GVW | 1 | $2,150 | $1,431 | $10 | $0 | $3,591 |
| Truck, Asphalt Distributor | 1 | $377 | $2,878 | $8 | $138 | $3,401 |
| Paving Crack Sealer, Trailer Mounted | 2 | $912 | $1,272 | $35 | $1,032 | $3,251 |
| Roller, Heavy Duty | 2 | $934 | $2,078 | $24 | $106 | $3,142 |
| Scooter, Battery Cart | 3 | $553 | $2,412 | $75 | $0 | $3,040 |
| Generator | 2 | $443 | $2,518 | $45 | $0 | $3,006 |
| Floor Scrubber | 2 | $618 | $2,332 | $38 | $0 | $2,988 |
| Prisoner Van | 1 | $903 | $1,696 | $23 | $0 | $2,622 |
| Loader, Solid Frame, Under 1/2 Yard | 2 | $660 | $1,882 | $38 | $0 | $2,579 |
| Chipper, Small | 8 | $428 | $1,935 | $52 | $0 | $2,415 |
| Scooter W/ Sprayer | 2 | $741 | $1,511 | $20 | $48 | $2,320 |
| Snowplow, Truck Mounted | 10 | $881 | $1,219 | $13 | $0 | $2,112 |
| Station Wagon | 3 | $619 | $1,431 | $50 | $0 | $2,100 |
| Sand Screed | 2 | $258 | $1,643 | $32 | $96 | $2,029 |
| Mower, 5 Reel, Riding | 5 | $709 | $1,214 | $55 | $0 | $1,977 |
| Carryall, 5000-7500 GVW | 1 | $537 | $1,140 | $32 | $0 | $1,708 |

| Description | # Veh. | Parts $ | Labor $ | HW $ | Outside $ | Total $ |
|---|---|---|---|---|---|---|
| Sand Spreader, Drop In w/ Aux Engine | 1 | $755 | $901 | $20 | $0 | $1,676 |
| Trailer, Horse | 2 | $474 | $1,113 | $20 | $64 | $1,671 |
| Truck, Flatbed, Over 30000 GVW w/ Acc | 1 | $264 | $1,325 | $17 | $48 | $1,654 |
| Hazardous Materials Van | 1 | $260 | $1,352 | $15 | $25 | $1,652 |
| Command Van | 2 | $135 | $1,272 | $10 | $113 | $1,530 |
| Trailer, Implement, 15000 GVW & Under | 3 | $258 | $1,113 | $33 | $0 | $1,403 |
| Trailer, Lo Boy | 1 | $77 | $1,235 | $25 | $0 | $1,337 |
| Tractor, Track Mounted, > 20000 GVW | 1 | $497 | $822 | $18 | $0 | $1,336 |
| Paver, Small or Aggregate Spreader | 1 | $253 | $1,044 | $13 | $0 | $1,310 |
| Sweeper | 1 | $32 | $1,087 | $13 | $0 | $1,131 |
| Generator, Trailer Mounted | 3 | $16 | $1,034 | $25 | $0 | $1,074 |
| Roller, Self Propelled | 1 | $219 | $716 | $20 | $0 | $954 |
| Mower, Tractor or Truck Mounted | 5 | $370 | $535 | $35 | $0 | $940 |
| Sweeper, Yard | 1 | $112 | $769 | $10 | $0 | $891 |
| Pavement Grinding Mill, Self Propelled | 1 | $69 | $742 | $13 | $0 | $823 |
| Asphalt Box | 1 | $104 | $689 | $5 | $0 | $798 |
| Mower, 4X4 | 2 | $113 | $562 | $35 | $0 | $709 |
| Chip Spreader | 1 | $68 | $599 | $7 | $0 | $674 |
| Sewer, Rodder, Trailer Mounted | 1 | $123 | $530 | $12 | $0 | $666 |
| Pallet Truck, Electric Walking | 1 | $0 | $451 | $13 | $132 | $595 |
| Sprayer, Trailer Mounted | 5 | $81 | $424 | $5 | $0 | $510 |
| Prisoner Van, Full Sized | 1 | $110 | $366 | $13 | $0 | $488 |
| Trailer, Concrete Mixer | 1 | $86 | $345 | $10 | $0 | $440 |
| Snow Plow | 1 | $0 | $292 | $3 | $0 | $294 |
| Compressor, Hydraulic | 1 | $23 | $239 | $5 | $0 | $266 |
| Mower, Riding, Air Cooled Engine | 1 | $24 | $212 | $3 | $0 | $239 |
| Mower, Greens, 3 Reel | 8 | $134 | $80 | $5 | $0 | $219 |
| Sweeper, Grounds, Towed | 3 | $134 | $27 | $3 | $0 | $163 |
| Sand Spreader, Towed | 2 | $0 | $159 | $3 | $0 | $162 |
| Sander, Large | 1 | $0 | $106 | $3 | $0 | $109 |
| Tractor, 53 Hp w/ 7 gang Tow Mower | 8 | $3 | $37 | $0 | $0 | $40 |

## Cost Comparison Between DAS and the Lowest Price Quote From a Vendor

Assuming that all of DAS' expenses on the four services were comparable to the specific services reviewed, in-house costs would be approximately $114,000 over the lowest price quotes from private vendors. Because potential cost differences for preventative maintenance on subcompact sedans and for body work are hard to quantify based on our data, these two services are not included in this table.

**Table: Cost Comparison Between DAS and the Lowest Price Quote From a Vendor**

| Service | DAS | Lowest | Difference Between DAS & Lowest Quote | Difference As % Of DAS Costs | Total DAS Spending For This Service | Cost Difference |
|---|---|---|---|---|---|---|
| Relining Brakes on Walk-In Vans | $ 1,751 | $ 1,380 | $ 371 | 21% | $ 24,000 | $ 5,085 |
| Replacing Tires on Patrol Cars | $ 387 | $ 241 | $ 146 | 38% | $ 170,995 | $ 64,509 |
| Replacing Dump Truck Tires | $ 1,788 | $ 1,398 | $ 390 | 22% | $ 100,444 | $ 21,909 |
| Relining Brakes on Patrol Cars | $ 743 | $ 631 | $ 112 | 15% | $146,810 | $ 22,130 |
| Total Cost Difference | | | | | | $ 113,633 |

## Cost Comparisons for Each of the Services Tested

**Figure 1: Cost Comparison For Relining Brakes On Walk-In Vans**

| Vendor | Cost Front Brakes | Cost Rear Brakes | Replace Fluid | Total | Comments |
|---|---|---|---|---|---|
| Vendor J | 528.47 | 987.01 | Included in px | $1,515.48 | Prices listed are for NAPA brake pads and shoes. |
| Vendor L | 594.84 | 925.27 | Included in px | $1,520.06 | |
| Vendor M | 577.87 | 801.78 | | $1,379.65 | |
| DAS | 833.63 | 917.73 | | $1,751.36 | |

**Figure 2: Cost Comparison For Replacing Tires On Patrol Cars**

| Vendor | Cost per Tire | Cost for Mounting | Cost for Balancing | Total Cost[5] | Comments |
|---|---|---|---|---|---|
| Vendor P | $50.15 | N/A | $8.50 | 254 | Cost for balancing is estimated based on other vendors |
| Vendor Q | $121.44 | $14.00 per tire | $8.50 | 623 | |
| Vendor R | $50.14 | No charge | $8.50 | 254 | |
| Vendor S | $47.62 | No charge | $7.95 | 241 | Price is for Goodyear comparable tire H-rated |
| DAS | $68.76 | | $28.05 labor | 387 | Labor charge includes both mounting and balancing |

**Figure 3: Cost Comparison For Replacing Tires On Dump Trucks**

| Vendor | Cost for Front Tires | Cost for Back Tires | Cost for Mounting | Cost for Balancing* | Total Cost[6] | Comments |
|---|---|---|---|---|---|---|
| Vendor Q | $497.12 each | $93.68 each | $14.00 each | $20.00 each | $1,615.38 | |
| Vendor R | $362.64 | $99.24 each | $21.50 each | $20.00 each | $1,397.92 | Does not include balancing rear tires, as is not generally needed |
| DAS | $460.75 each | $216.71 each | | | $1,788.34 | |
| *****Front tires only | | | | | | |

[5] Total cost includes the cost of mounting and balancing four tires, plus 8.2 percent Washington State sales tax (for outside vendors only).

[6] Total cost includes the cost of mounting and balancing two front tires and mounting four rear tires, plus 8.2 percent Washington Sstate Sales tax (for outside vendors only).

**Figure 4: Cost Comparison For Relining Brakes On Patrol Cars**

| Vendor | Cost Front Brakes | Cost Rear Brakes | Total | Comments |
|---|---|---|---|---|
| Vendor A | 443 | 326 | 769 | |
| Vendor B | | | 754 | Special price for all four wheels |
| Vendor C | 431 | 289 | 720 | Includes replacing the calipers |
| Vendor D | 462 | 353 | 815 | |
| Vendor E | 374 | 257 | 631 | All after-market parts[7] |
| DAS | 467 | 276 | 743 | |

**Figure 5: Cost Comparison For Preventative Maintenance On Subcompact Sedans**

| **Total Cost** | | | | |
|---|---|---|---|---|
| | **First Test** | **Second Test** | **Third Test** | **All Three Tests** |
| Vendor | $171 | $131 | $104 | $406 |
| DAS | $122 | $146 | $119 | $387 |
| **Quality Control Check** | | | | |
| | **First Test** | **Second Test** | **Third Test** | |
| Vendor | 3 defects | 3 defects | 5 defects | |
| DAS | No defects | No defects | No defects | |

[7] We accepted this price quote, even though it was not for the parts as specified, because the vendor told us that federal regulation regulations require aftermarket parts to meet or exceed original equipment manufacturer (OEM) standards for materials.

**Figure 6: Overall Comparison For Body Work On Patrol Cars**

| Total Cost | | | | |
|---|---|---|---|---|
| **Vehicle Number** | **425B** | **222K** | **344B** | **All Three Vehicles** |
| **Independent Estimate** | $1,722 | $6,401 | $6,002 | $14,125 |
| **Vendor Z** | $1,512 | $5,670 | $5,358 | $12,540 |
| **DAS Estimate** | $1,806 | $6,392 | $6,726 | $14,924 |
| **DAS' Actual Costs** | $1,554 | $4,104 | $4,397 | $10,055 |

**Detail Comparison for Body Work On Patrol Cars**

| Vehicle Number 425B | | | | | |
|---|---|---|---|---|---|
| | **Labor** | **Parts** | **Sublet & Net** | **Tax** | **Total Cost** |
| **Independent Estimate** | $1,231 | $137 | $224 | $130 | $1,722 |
| **Vendor Z** | $1,229 | $122 | $46 | $115 | $1,512 |
| **DAS Estimate** | $645 | $1,161 | | | $1,806 |
| **DAS' Actual Costs** | $963 | $588 | $3 | | $1,554 |
| **Vehicle Number 222K** | | | | | |
| | **Labor** | **Parts** | **Sublet & Net** | **Tax** | **Total Cost** |
| **Independent Estimate** | $2,491 | $2,749 | $676 | $485 | $6,401 |
| **Vendor Z** | $2,727 | $2,473 | $40 | $430 | $5,670 |
| **DAS Estimate** | $3,459 | $2,933 | | | $6,392 |
| **DAS' Actual Costs** | $3,712 | $333 | $59 | | $4,104 |
| **Vehicle Number 344B** | | | | | |
| | **Labor** | **Parts** | **Sublet & Net** | **Tax** | **Total Cost** |
| **Independent Estimate** | $2,664 | $1,969 | $914 | $455 | $6,002 |
| **Vendor Z** | $2,855 | $1,950 | $147 | $406 | $5,358 |
| **DAS Estimate** | $2,601 | $4,125 | | | $6,726 |
| **DAS' Actual Costs** | $3,382 | $960 | $55 | | $4,397 |

## Comparison of Services Provided

**Figure 7: Comparison Of Selected Service Options For Brake Work On Walk-In Vans**

| Vendor | Volume Discount | Pick up and Delivery | Extra charge for Pick Up and Delivery | Average Turnaround Time | Ability to Accommodate Drop-in Work | Type of Parts if Different from Specified | Contracts with Other Large Public or Entities |
|---|---|---|---|---|---|---|---|
| Vendor J | 15% to lrg cust. | Yes | $13.80 each way | 6 hours | Yes | NAPA | Yes |
| Vendor L | No | Yes | Varies* | 1 day | Yes | Aftermarket | No** |
| Vendor M | 25-35% on parts | Yes | No extra charge | 1 day | Yes | OEM | Yes |
| DAS | N/A | Yes | No extra charge | 3.5 hours | Yes | N/A | Yes |

*Within a few miles, it's free, otherwise we charge our hourly rate for mechanics, or $56.50 per hour.
**Many large companies are our regular customers, but we don't have written contracts with them.

**Figure 8: Comparison Of Service Options For Tires (Both Patrol Cars And Dump Trucks)**

| Vendor | Pick up and Delivery | Extra charge for Pick-up and Delivery | Average Turnaround Time | Provide Road Service | Charge for Road Service | Accommodate Drop-in Work | Parts if Different from Specified | Other Large Public or Private Entities |
|---|---|---|---|---|---|---|---|---|
| Vendor P | N/A | N/A | N/A | N/A | N/A | N/A | As specified | Yes |
| Vendor Q | Yes | | Same day | Yes | $40 per call* | Yes | Michelin | Yes |
| Vendor R | Yes | $5 per vehicle | 2-3 hours | Yes | | Yes | As specified | Yes |
| Vendor S | Possibly | Negotiable | 3-5 days | Yes | $95 per call** | Yes | General | Yes |
| DAS | Yes | No extra charge | 1 hour or less | Yes | | Yes | As specified | Yes |

*$40 per call during regular service hours. $90 per call for after hours calls, plus labor @ time-and-a-half
**Plus time-and-a-half for labor

**Figure 9: Comparison Of Selected Service Options For Brake Relines On Patrol Cars**

| Vendor | Volume Discount | Pick Up And Delivery | Extra Charge For Pick-Up And Delivery | Average Turnaround Time | Ability To Accommodate Drop-In Work | Type Of Parts If Different From Specified | Contracts With Other Large Public Or Entities |
|---|---|---|---|---|---|---|---|
| Vendor A | | Yes | Neg. | 1/2 day | Yes | Aftermarket | Yes |
| Vendor B | No | No | N/A | 1 day | Yes | As specified | Yes |
| Vendor C | No | No | N/A | 1 day | In 1-2 days | Ray Bestus | |
| Vendor D | No | Yes | None | 1 day | Yes | OEM | Yes |
| Vendor E | Yes - 10% | Yes | None | Couple hours | Yes | Aftermarket | Yes |
| DAS | N/A | Yes | No extra charge | 1.5 hours | Yes | As specified | Yes |

## Summary of Main Points Raised by DAS' Customers

**Overall satisfaction with DAS' vehicle maintenance services:**

- Generally very satisfied with quality, convenience, and cost.
- Service is convenient and timely; not sure whether the cost is competitive, and quality varies.
- Current system seems to work really well. Especially appreciate that DAS works at night and handles a lot of drop-in work for us.
- Charles Street Shop is outstanding--turnaround time is good even in emergency situations. Cost is high--believe it would be more cost effective for the City to lease cars directly from the dealer.
- Good quality maintenance and repair work. In the last two years, better communication channels have improved both timeliness and the need for rework. Service is very convenient, and staff is responsive. Currently exploring whether cost is competitive, especially for small tools.
- Quality is good, timeliness is pretty good, the service is convenient if a loaner car is available, and I don't know about cost.
- Clearly satisfactory on all counts. Direct labor hour rates are competitive.
- We have lots of confidence in the quality of DAS' work, and they give us quick turnaround. The service is pretty convenient, but occasionally there are long waits at the shop. I don't know whether the cost is competitive.
- Consider DAS to be one of our better performers. They are convenient and responsive.
- In general, DAS provides very good service to us, and we are very satisfied with it. We especially appreciate their customer-service attitude. I am not sure whether their costs are competitive.

**We would be happier with DAS' service if:**

- It was more timely.
- Certain specialty shops weren't understaffed.
- Preventative maintenance work was completed in one day.
- The time needed to get new vehicles into service was reduced.
- Work was charged based on a standard cost per job.
- We didn't have to pay for rework.
- Overhead costs were reduced.
- Lease rates were substantiated based on DAS' actual costs.
- DAS clarified who is responsible for paying for preventative maintenance and repairs on certain kinds of specialized equipment.
- Lease rates were reduced after equipment becomes fully depreciated.
- The mark-up on parts and overhead costs were reduced.
- A cost comparison with local industry costs was conducted.

## Fleet Services Division Vehicle Maintenance Performance Measures

**Mission Statement:**
To provide effective, economical maintenance of the City's vehicle fleet, with a minimum of downtime of vehicles, by efficient operation of the City's vehicle maintenance shops and other vehicle servicing facilities.

**Work outputs:**

Key Objective: To assess whether maintenance costs are adequately addressed.

Indicator: Average maintenance cost per vehicle by class
Target: Prior year's average maintenance cost
Interval: Quarterly

Key Objective: To identify whether staff levels are optimized to minimize costs and downtime to departments while providing an acceptable level of customer service.

Indicator: Ratio of mechanics to the number of vehicle maintained
Target: 50/1
Interval: Quarterly

Key Objective: To measure the effectiveness of the Fleet preventative maintenance program.

Indicator: Ratio of scheduled maintenance to unscheduled maintenance (preventative maintenance hours divided by number of hours charged to breakdown repairs (excluding capital maintenance or accident/damage work)
Target: 50/50 ratio
Interval: Quarterly

**Client Benefits:**

Key Objective: To minimize the amount of time vehicles are down for maintenance, or conversely, to maximize the amount of time vehicles stay on the road.

Indicator: Percentage of repaired vehicles returned to customers within specified timeframe
Target: Percent of vehicles returned within 1 day - 70%
Percent of vehicles returned within 2 days - 20 %
Percent of vehicles returned over 2 days - 10%
Interval: Quarterly

Key Objective: To determine whether customers are satisfied with maintenance services in terms of quality, downtime, cost and overall performance by vehicle maintenance shops.

Indicator: Percentage of customer surveys rating services satisfactory or better
Target: 90%
Interval: Annually

## Additional Customer Benefits Provided by DAS[8]

### Emergency Service

The shop people are on on-call status if there are emergencies, such as windstorms, earthquakes, major fires, vault fires, snowstorms, etc. and often work 12 hour shifts during major emergencies. The shop people provide this emergency service to the public safety agencies as well as to the utilities during emergencies and major events in the City. Examples are the vault fire in 1993, Chelan fires, every major snowstorm we have, windstorms in 3 of the last 4 years, floods in the watersheds, pipeline breaks, APEC, Presidential visits, etc. They also provide fuel via tanker at large fires to keep pumpers running, to emergency generators that are at fire stations, precincts, to City Light vehicles when they have major power outages, etc.

### Sub-contracting service

The shops send out about a million dollars in outside work a year for services we either cannot do cost effectively or the workload exceeds our ability to complete the work in a reasonable time. The shops communicate with the vendor about what needs to be done to the vehicle or piece of equipment (sometimes drawing up specs for major overhauls of units like City Light aerial devices). They either arrange for the vehicle to be picked up, or, depending on the terms of the contract, shuttle the vehicle or have it towed to the vendor. They monitor the work in progress, try to ensure it is returned to the City in a reasonable time, and answer technical questions raised by the vendor as they occur. They arrange for the vehicle/equipment to be returned to the City as described above, and inspect it upon return to make sure the work has been done properly. If the work hasn't been done properly, it is returned to the vendor (however many times it takes to get the work done properly). When it is not cost effective to complete the work, the vendor hasn't completed or done properly, the shop will do the work and deduct this cost from the amount owed to the vendor.

### Loaners

Included in the cost of service for general purpose vehicles are loaner vehicles for user departments when their vehicles are in the shop. We also provide temporary vehicles for users if we have them available from among vehicles that have come out of service - the shops will go through the vehicles and make them road ready again if it's cost effective to do so.

### Car Wash

Our rates also cover car washes for all general purpose vehicles - the costs for upkeep and replacement of the car wash are covered by the vehicle maintenance rate. For those customers for whom it isn't practical to come to the carwash because of driving distance, we provide them with car wash tickets to have their vehicles cleaned.

### Customization/Design/Fabrication Work

The shop personnel (along with the engineering staff) provide specialized services in the specialty shops particularly, such as fabricating parts, creating parts that are no longer available, building something that isn't available in the private sector, etc.

[8] This information was written and submitted by DAS.

### Spare Keys
We keep spare keys for all the vehicles/equipment in the shops and make replacements for the users when they need them - this may not sound like a big deal, but we are regularly replacing keys for City vehicles when users lose them or leave them at home, etc.

### Field Work
We provide tow service and field repairs via shop trucks when vehicles/ equipment break down on the road or at a work site. We also provide this service for tire work, aerial devices stuck in the air (particularly when a whole crew is tied up), etc. We also provide fueling to vehicles at night for the utilities via tanker, and will deliver fuel to someone on the road if they run out of gas/diesel.

### Equipment Information
We provide detailed billing and equipment management information to our customers, and have many of our customers connected directly to our Equipment Management System so they can go into the system to get information to help them manage their fleets better.

### Equipment Specifications
The mechanics and shop supervisors provide a considerable amount of feedback to the fleet manager and the engineering staff about what requirements should go into the specifications for replacement of vehicles and equipment that reduces the cost of operating and maintaining the equipment in the future. The shops are also responsible for accepting new vehicles, making sure they meet specifications, adding on equipment that the factory or dealers don't install, and removing old equipment from service and preparing them for sale (e.g. painting out police cars so they don't appear to be patrol cars).

### Warehouse Supplies
The warehouses carry user supplies that can be readily made available to customers in the shops, such as windshield washer fluid, deicer, ice scrapers, chains, etc.

### Social Goals
Recycling materials and use of recycled content materials - to support this City program, we recycle all tires, antifreeze, batteries, metals, filters, freon, etc. and use recapped tires, re-refined oil, recycled antifreeze, etc. All of this has additional cost associated with it.

Apprenticeship Program - to support the City's goals for Affirmative Action, diversity, and apprenticeship, we have 5 mechanic apprentices and a mentor dedicated to this program.

WMBE Contracts - In order to support the City's WMBE program, we use WMBE contractors as much as possible (who are not always the low bidder for various products and services).

Other Programs - The shops are asked to support numerous other City goals such as training programs like NOVA, Leading Edge, Prep, Advanced Management, etc. as well as Combined Charities, Blood Drives, Savings Bonds, Women in the Trades, Employee Involvement Committees and associations, Take Your Daughters to Work Day, etc.

## DAS' Response To Our Audit

# Office of City Auditor Report Evaluation Form

**FAX...WRITE...CALL...DROP BY...**
**HELP US SERVE THE CITY BETTER**

Our mission at the Office of City Auditor is to help assist the City in achieving honest, efficient management and full accountability throughout the City government. We service the public interest by providing the Mayor, the City Council and City managers with accurate information, unbiased analysis, and objective recommendations on how best to use public resources in support of the well-being of the citizens of Seattle.

Your feedback helps us do a better job. If you could please take a few minutes to fill out the following information for us, it will help us assess and improve our work.

* * * * * * * * * * * * * * * * * * * * *

Report: **Comparison of In-House Costs and Private Sector Prices for Selected Vehicle Maintenance Services** (October 30, 1996)

Please rate the following elements of this report by checking the appropriate box:

| | Too Little | Just Right | Too Much |
|---|---|---|---|
| Background Information | | | |
| Details | | | |
| Length of Report | | | |
| Clarity of Writing | | | |
| Potential Impact | | | |

Suggestions for our report format: _____

_____

_____

Suggestions for future studies: _____

_____

_____

Other comments, thoughts, ideas: _____

_____

_____

Name (Optional): _____

Thanks for taking the time to help us.

Fax: 684-8587
Mail: Office of City Auditor, 1100 Municipal Building, Seattle, WA 98104-1876
Call: Nora J.E. Masters, City Auditor, 233-0088
E-Mail: nora.masters@ci.seattle.wa.us
Drop by and visit: 10th Floor of the Municipal Building